

CLAIMS

1. A method of forming a membrane for use in conjunction with a semiconductor carrier which comprises the steps of:

- (a) providing an electrically insulating substrate;
- (b) forming an interconnect pattern on said substrate;
- (c) forming a stud coupled to said interconnect pattern over said substrate by forming a gold ball and coating a portion of said gold ball with a compliant material.

2. The method of claim 1 wherein step (c) includes the steps of forming said gold ball by forming a ball bond on said substrate.

3. The method of claim 1 wherein said step of coating said gold ball includes the step of immersing a portion of said ball into a compliant epoxy resin to coat said ball with said compliant material.

4. The method of claim 2 wherein said step of coating said gold ball includes the step of immersing a portion of said ball into a compliant epoxy resin to coat said ball with said compliant material.

5. The method of claim 1 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

6. The method of claim 2 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

7. The method of claim 3 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

8. The method of claim 4 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

9. The method of claim 5 wherein said material is silver or silver-based flakes.

10. The method of claim 6 wherein said material is silver or silver-based flakes

11. The method of claim 7 wherein said material is silver or silver-based flakes

12. The method of claim 8 wherein said material is silver or silver-based flakes

13. A membrane for use in conjunction with a semiconductor carrier which comprises:

(a) an electrically insulating substrate;

(b) an interconnect pattern on said substrate;

(c) a stud coupled to said interconnect pattern over said substrate, said stud

comprising a gold ball and a compliant material coating over a portion of said gold ball.

14. The membrane of claim 13 wherein said gold ball is the ball of a ball bond on said substrate.

15. The membrane of claim 13 wherein said coating is a compliant epoxy resin.

16. The membrane of claim 14 wherein said coating is a compliant epoxy resin.

17. The membrane of claim 15 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

18. The membrane of claim 16 wherein said compliant material is filled with a material having sufficient hardness to be capable of penetrating the oxide film on the contact pads of semiconductor devices.

19. The membrane of claim 17 wherein said material is silver or silver-based flakes.

20. The membrane of claim 18 wherein said material is silver or silver-based flakes.